SEQUENCE LISTING

<110> Martinkovich, M. Peter

<120> COMPOSITIONS AND METHODS FOR INHIBITING SQUAMOUS CELL CARCINOMA

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Gln Arg Gly Asp Ile Asp Ala Met Ile Ser Ser Ala Lys Ser Met Val
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35 40 45

Pro Thr Tyr Phe Asn Leu Ala Glu Ala Ala Arg Ile Trp Ala Thr Ala
50 55 60

Thr Cys Gly Glu Arg Gly Pro Gly Glu Gly Arg Pro Gln Pro Glu Leu
65 70 75 80

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Tyr Cys Lys Leu Val Gly Gly Pro Thr Ala Pro Gly Ser Gly His Thr
                85                  90                  95

Ile Gln Gly Gln Phe Cys Asp Tyr Cys Asn Ser Glu Asp Pro Arg Lys
            100                 105                 110

Ala His Pro Val Thr Asn Ala Ile Asp Gly Ser Glu Arg Trp Trp Gln
        115                 120                 125

Ser Pro Pro Leu Ser Ser Gly Thr Gln Tyr Asn Arg Val Asn Leu Thr
    130                 135                 140

Leu Asp Leu Gly Gln Leu Phe His Val Ala Tyr Ile Leu Ile Lys Phe
145                 150                 155                 160

Ala Asn Ser Pro Arg Pro Asp Leu Trp Val Leu Glu Arg Ser Val Asp
                165                 170                 175

Phe Gly Ser Thr Tyr Ser Pro Trp Gln Tyr Phe Ala His Ser Lys Val
            180                 185                 190

Asp Cys Leu Lys Glu Phe Gly Arg Glu Ala Asn Met Ala Val Thr Arg
        195                 200                 205

Asp Asp Asp Val Leu Cys Val Thr Glu Tyr Ser Arg Ile Val Pro Leu
    210                 215                 220

Glu Asn Gly Glu Val Val Val Ser Leu Ile Asn Gly Arg Pro Gly Ala
225                 230                 235                 240

Lys Asn Phe Thr Phe Ser His Thr Leu Arg Glu Phe Thr Lys Ala Thr
                245                 250                 255

Asn Ile Arg Leu Arg Phe Leu Arg Thr Asn Thr Leu Leu Gly His Leu
            260                 265                 270

Ile Ser Lys Ala Gln Arg Asp Pro Thr Val Thr Arg Arg Tyr Tyr Tyr
        275                 280                 285

Ser Ile Lys Asp Ile Ser Ile Gly Gly Gln Cys Val Cys Asn Gly His
    290                 295                 300

Ala Glu Val Cys Asn Ile Asn Asn Pro Glu Lys Leu Phe Arg Cys Glu
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Cys Gln His His Thr Cys Gly Glu Thr Cys Asp Arg Cys Cys Thr Gly
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Phe His Gly Asp Asn Cys Glu Lys Cys Ala Ile Gly Tyr Tyr Asn Phe
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Ser Phe Pro Ile Cys Gln Ala Cys Trp Cys Ser Ala Leu Gly Ser Tyr
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Val Thr Gly Gln Arg Cys Asp Arg Cys Leu Ser Gly Ala Tyr Asp Phe
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Pro His Cys Gln Gly Ser Ser Ser Ala Cys Asp Pro Ala Gly Thr Ile
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Asn Ser Asn Leu Gly Tyr Cys Gln Cys Lys Leu His Val Glu Gly Pro
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Thr Cys Ser Arg Cys Lys Leu Leu Tyr Trp Asn Leu Asp Lys Glu Asn
    610                 615                 620

Pro Ser Gly Cys Ser Glu Cys Lys Cys His Lys Ala Gly Thr Val Ser
625                 630                 635                 640

Gly Thr Gly Glu Cys Arg Gln Gly Asp Gly Asp Cys His Cys Lys Ser
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His Val Gly Gly Asp Ser Cys Asp Thr Cys Glu Asp Gly Tyr Phe Ala
            660                 665                 670

Leu Glu Lys Ser Asn Tyr Phe Gly Cys Gln Gly Cys Gln Cys Asp Ile
        675                 680                 685

Gly Gly Ala Leu Ser Ser Met Cys Ser Gly Pro Ser Gly Val Cys Gln
    690                 695                 700

Cys Arg Glu His Val Val Gly Lys Val Cys Gln Arg Pro Glu Asn Asn
705                 710                 715                 720

Tyr Tyr Phe Pro Asp Leu His His Met Lys Tyr Glu Ile Glu Asp Gly
                725                 730                 735

Ser Thr Pro Asn Gly Arg Asp Leu Arg Phe Gly Phe Asp Pro Leu Ala
            740                 745                 750

Phe Pro Glu Phe Ser Trp Arg Gly Tyr Ala Gln Met Thr Ser Val Gln
        755                 760                 765

Asn Asp Val Arg Ile Thr Leu Asn Val Gly Lys Ser Ser Gly Ser Leu
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Phe Arg Val Ile Leu Arg Tyr Val Asn Pro Gly Thr Glu Ala Val Ser
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Gly His Ile Thr Ile Tyr Pro Ser Trp Gly Ala Ala Gln Ser Lys Glu
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Cys Ile Lys Ala Glu Gly Val Leu Leu Asp Tyr Leu Val Leu Leu Pro
    850                 855                 860

Arg Asp Tyr Tyr Glu Ala Ser Val Leu Gln Leu Pro Val Thr Glu Pro
865                 870                 875                 880

Cys Ala Tyr Ala Gly Pro Pro Gln Glu Asn Cys Leu Leu Tyr Gln His
                885                 890                 895

Leu Pro Val Thr Arg Phe Pro Cys Thr Leu Ala Cys Glu Ala Arg His
            900                 905                 910

Phe Leu Leu Asp Gly Glu Pro Arg Pro Val Ala Val Arg Gln Pro Thr
        915                 920                 925

Pro Ala His Pro Val Met Val Asp Leu Ser Gly Arg Glu Val Glu Leu
    930                 935                 940

His Leu Arg Leu Arg Ile Pro Gln Val Gly His Tyr Val Val Val Val
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Glu Tyr Ser Thr Glu Ala Ala Gln Leu Phe Val Val Asp Val Asn Val
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Lys Ser Ser Gly Ser Val Leu Ala Gly Gln Val Asn Ile Tyr Ser Cys
            980                 985                 990

Asn Tyr Ser Val Leu Cys Arg Ser  Ala Val Ile Asp His  Met Ser Arg
        995                 1000                1005

Ile Ala  Met Tyr Glu Leu Leu  Ala Asp Ala Asp Ile  Gln Leu Lys
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Gly His  Met Ala Arg Phe Leu  Leu His Gln Val Cys  Ile Ile Pro
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Ile Glu  Glu Phe Ser Ala Glu  Tyr Val Arg Pro Gln  Val His Cys
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Ile Ala Ser Tyr Gly Arg Phe Val Asn Gln Ser Ala Thr Cys Val
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Ser Leu Ala His Glu Thr Pro Pro Thr Ala Leu Ile Leu Asp Val
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Leu Ser Gly Arg Pro Phe Pro His Leu Pro Gln Gln Ser Ser Pro
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Ser Val Asp Val Leu Pro Gly Val Thr Leu Lys Ala Pro Gln Asn
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Gln Val Thr Leu Arg Gly Arg Val Pro His Leu Gly Arg Tyr Val
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Phe Val Ile His Phe Tyr Gln Ala Ala His Pro Thr Phe Pro Ala
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Ser Pro Glu Gly Gly Gln Cys Pro Cys Gln Pro Asn Val Ile Gly

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Arg Gln Cys Thr Arg Cys Ala Thr Gly His Tyr Gly Phe Pro Arg
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Gly Ser Cys Arg Ala Cys Pro Cys Pro His Thr Asn Ser Phe Ala
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Thr Gly Cys Val Val Asn Gly Gly Asp Val Arg Cys Ser Cys Lys
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Ala Gly Tyr Thr Gly Thr Gln Cys Glu Arg Cys Ala Pro Gly Tyr
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Phe Gly Asn Pro Gln Lys Phe Gly Gly Ser Cys Gln Pro Cys Ser
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Cys Asn Ser Asn Gly Gln Leu Gly Ser Cys His Pro Leu Thr Gly
1790 1795 1800

Asp Cys Ile Asn Gln Glu Pro Lys Asp Ser Ser Pro Ala Glu Glu
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Cys Asp Asp Cys Asp Ser Cys Val Met Thr Leu Leu Asn Asp Leu
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Ala Thr Met Gly Glu Gln Leu Arg Leu Val Lys Ser Gln Leu Gln
1835 1840 1845

Gly Leu Ser Ala Ser Ala Gly Leu Leu Glu Gln Met Arg His Met
1850 1855 1860

Glu Thr Gln Ala Lys Asp Leu Arg Asn Gln Leu Leu Asn Tyr Arg
1865 1870 1875

Ser Ala Ile Ser Asn His Gly Ser Lys Ile Glu Gly Leu Glu Arg
1880 1885 1890

Glu Leu Thr Asp Leu Asn Gln Glu Phe Glu Thr Leu Gln Glu Lys
1895 1900 1905

Ala Gln Val Asn Ser Arg Lys Ala Gln Thr Leu Asn Asn Asn Val
1910 1915 1920

Asn Arg Ala Thr Gln Ser Ala Lys Glu Leu Asp Val Lys Ile Lys
1925 1930 1935

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1940 1945 1950

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1955 1960 1965

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1970 1975 1980

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1985 1990 1995

Ser Gln Leu Leu Leu Asn Arg Ile Arg Thr Trp Gln Lys Thr His
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Gln Gly Glu Asn Asn Gly Leu Ala Asn Ser Ile Arg Asp Ser Leu
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Phe Leu Gln Arg Pro Asn Ser Arg Glu Asn Gly Gly Thr Glu Asn
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Met Phe Val Met Tyr Leu Gly Asn Lys Asp Ala Ser Arg Asp Tyr
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Ser Phe Pro Pro Tyr Lys Gly Cys Ile Glu Leu Asp Asp Leu Asn
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Glu Asn Val Leu Ser Leu Tyr Asn Phe Lys Lys Thr Phe Asn Leu
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Ser Phe Gly Phe Gln Thr Phe Gln Pro Ser Gly Ile Leu Leu Asp
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His Gln Thr Trp Thr Arg Asn Leu Gln Val Thr Leu Glu Asp Gly
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Tyr Ile Glu Leu Ser Thr Ser Asp Ser Gly Ser Pro Ile Phe Lys
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Ser Pro Gln Thr Tyr Met Asp Gly Leu Leu His Tyr Val Ser Val
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Ile Ser Asp Asn Ser Gly Leu Arg Leu Leu Ile Asp Asp Gln Leu
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Phe Gly Asp Ile Pro Thr Ser His Leu Leu Phe Lys Leu Pro Gln
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Glu Leu Leu Lys Pro Arg Ser Gln Phe Ala Val Asp Met Gln Thr
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Phe Met Ala Leu Tyr Leu Ser Lys Gly Arg Leu Val Phe Ala Leu
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Gly Thr Asp Gly Lys Lys Leu Arg Ile Lys Ser Lys Glu Lys Cys
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Asn Asp Gly Lys Trp His Thr Val Val Phe Gly His Asp Gly Glu
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Ser Tyr Val Glu Phe Arg Pro Ser Gln Gly Cys Ser Pro Gly Tyr Tyr
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Arg Asp His Lys Gly Leu Tyr Thr Gly Arg Cys Val Pro Cys Asn Cys
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Cys Gln His Asn Thr Ala Gly Glu His Cys Glu Arg Cys Gln Glu Gly
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Tyr Tyr Gly Asn Ala Val His Gly Ser Cys Arg Ala Cys Pro Cys Pro
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His Thr Asn Ser Phe Ala Thr Gly Cys Val Val Asn Gly Gly Asp Val
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Ala Pro Gly Tyr Phe Gly Asn Pro Gln Lys Phe Gly Gly Ser Cys Gln
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Arg Lys Ala Gln Thr Leu Asn Asn Asn Val Asn Arg Ala Thr Gln Ser
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Ala Lys Glu Leu Asp Val Lys Ile Lys Asn Val Ile Arg Asn Val His
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Ile Leu Leu Lys Gln Ile Ser Gly Thr Asp Gly Glu Gly Asn Asn Val
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Pro Ser Gly Asp Phe Ser Arg Glu Trp Ala Glu Ala Gln Arg Met Met
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Arg Glu Leu Arg Asn Arg Asn Phe Gly Lys His Leu Arg Glu Ala Glu
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Ala Asp Lys Arg Glu Ser Gln Leu Leu Leu Asn Arg Ile Arg Thr Trp
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Gln Lys Thr His Gln Gly Glu Asn Asn Gly Leu Ala Asn Ser Ile Arg
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Asp Ser Leu Asn Glu Tyr Glu Ala Lys Leu Ser Asp Leu Arg Ala Arg
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Lys Asp Ala Ser Arg Asp Tyr Ile Gly Met Ala Val Val Asp Gly Gln
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Leu Thr Cys Val Tyr Asn Leu Gly Asp Arg Glu Ala Glu Leu Gln Val
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Asp Gln Ile Leu Thr Lys Ser Glu Thr Lys Glu Ala Val Met Asp Arg
865                 870                 875                 880

Val Lys Phe Gln Arg Ile Tyr Gln Phe Ala Arg Leu Asn Tyr Thr Lys
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Gly Ala Thr Ser Ser Lys Pro Glu Thr Pro Gly Val Tyr Asp Met Asp
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Gly Arg Asn Ser Asn Thr Leu Leu Asn Leu Asp Pro Glu Asn Val Val
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Phe Tyr Val Gly Gly Tyr Pro Pro Asp Phe Lys Leu Pro Ser Arg Leu
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Ser Phe Pro Pro Tyr Lys Gly Cys Ile Glu Leu Asp Asp Leu Asn Glu
945                 950                 955                 960

Asn Val Leu Ser Leu Tyr Asn Phe Lys Lys Thr Phe Asn Leu Asn Thr
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Thr Glu Val Glu Pro Cys Arg Arg Arg Lys Glu Glu Ser Asp Lys Asn
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Tyr Phe Glu Gly Thr Gly Tyr Ala  Arg Val Pro Thr Gln  Pro His Ala
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Pro Ile  Pro Thr Phe Gly Gln  Thr Ile Gln Thr Thr  Val Asp Arg
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Gly Leu  Leu Phe Phe Ala Glu  Asn Gly Asp Arg Phe  Ile Ser Leu
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Asn Ile  Glu Asp Gly Lys Leu  Met Val Arg Tyr Lys  Leu Asn Ser
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Glu Leu  Pro Lys Glu Arg Gly  Val Gly Asp Ala Ile  Asn Asn Gly
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Arg Asp  His Ser Ile Gln Ile  Lys Ile Gly Lys Leu  Gln Lys Arg
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Met Trp  Ile Asn Val Asp Val  Gln Asn Thr Ile Ile  Asp Gly Glu
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Val Phe  Asp Phe Ser Thr Tyr  Tyr Leu Gly Gly Ile  Pro Ile Ala
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Ile Arg  Glu Arg Phe Asn Ile  Ser Thr Pro Ala Phe  Arg Gly Cys
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Met Lys  Asn Leu Lys Lys Thr  Ser Gly Val Val Arg  Leu Asn Asp
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Arg Ser Ala Ser Phe Ser Arg Gly Gly Gln Leu Ser Phe Thr Asp
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Leu Gly Leu Pro Pro Thr Asp His Leu Gln Ala Ser Phe Gly Phe
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Gln Thr Phe Gln Pro Ser Gly Ile Leu Leu Asp His Gln Thr Trp
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Thr Arg Asn Leu Gln Val Thr Leu Glu Asp Gly Tyr Ile Glu Leu
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Ser Thr Ser Asp Ser Gly Ser Pro Ile Phe Lys Ser Pro Gln Thr
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Tyr Met Asp Gly Leu Leu His Tyr Val Ser Val Ile Ser Asp Asn
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Ser Gly Leu Arg Leu Leu Ile Asp Asp Gln Leu Leu Arg Asn Ser
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Lys Arg Leu Lys His Ile Ser Ser Ser Arg Gln Ser Leu Arg Leu
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Gly Gly Ser Asn Phe Glu Gly Cys Ile Ser Asn Val Phe Val Gln
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Arg Leu Ser Leu Ser Pro Glu Val Leu Asp Leu Thr Ser Asn Ser
1295 1300 1305

Leu Lys Arg Asp Val Ser Leu Gly Gly Cys Ser Leu Asn Lys Pro
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Pro Phe Leu Met Leu Leu Lys Gly Ser Thr Arg Phe Asn Lys Thr
1325 1330 1335

Lys Thr Phe Arg Ile Asn Gln Leu Leu Gln Asp Thr Pro Val Ala
1340 1345 1350

Ser Pro Arg Ser Val Lys Val Trp Gln Asp Ala Cys Ser Pro Leu
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Pro Lys Thr Gln Ala Asn His Gly Ala Leu Gln Phe Gly Asp Ile

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Pro Thr Ser His Leu Leu Phe Lys Leu Pro Gln Glu Leu Leu Lys
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Pro Arg Ser Gln Phe Ala Val Asp Met Gln Thr Thr Ser Ser Arg
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Gly Leu Val Phe His Thr Gly Thr Lys Asn Ser Phe Met Ala Leu
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Tyr Leu Ser Lys Gly Arg Leu Val Phe Ala Leu Gly Thr Asp Gly
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Lys Lys Leu Arg Ile Lys Ser Lys Glu Lys Cys Asn Asp Gly Lys
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Trp His Thr Val Val Phe Gly His Asp Gly Glu Lys Gly Arg Leu
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Val Val Asp Gly Leu Arg Ala Arg Glu Gly Ser Leu Pro Gly Asn
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Ser Thr Ile Ser Ile Arg Ala Pro Val Tyr Leu Gly Ser Pro Pro
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Ser Gly Lys Pro Lys Ser Leu Pro Thr Asn Ser Phe Val Gly Cys
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Leu Lys Asn Phe Gln Leu Asp Ser Lys Pro Leu Tyr Thr Pro Ser
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Ser Ser Phe Gly Val Ser Ser Cys Leu Gly Gly Pro Leu Glu Lys
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Gly Ile Tyr Phe Ser Glu Glu Gly Gly His Val Val Leu Ala His
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Ser Val Leu Leu Gly Pro Glu Phe Lys Leu Val Phe Ser Ile Arg
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Pro Arg Ser Leu Thr Gly Ile Leu Ile His Ile Gly Ser Gln Pro
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Gly Lys His Leu Cys Val Tyr Leu Glu Ala Gly Lys Val Thr Ala
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Ser Met Asp Ser Gly Ala Gly Gly Thr Ser Thr Ser Val Thr Pro
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Lys Gln Ser Leu Cys Asp Gly Gln Trp His Ser Val Ala Val Thr
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Ile Lys Gln His Ile Leu His Leu Glu Leu Asp Thr Asp Ser Ser
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Tyr Thr Ala Gly Gln Ile Pro Phe Pro Pro Ala Ser Thr Gln Glu
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Pro Leu His Leu Gly Gly Ala Pro Ala Asn Leu Thr Thr Leu Arg
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Ile Pro Val Trp Lys Ser Phe Phe Gly Cys Leu Arg Asn Ile His
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35 40 45

Ser Tyr Met Glu Leu Arg Pro Ser Gln Gly Cys Arg Pro Gly Tyr Tyr
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Arg Asp Ile Lys Ser Phe Pro Ala Gly Arg Ser Val Pro Cys Asn Cys
65 70 75 80

Asn Gly His Ser Asn Arg Cys Gln Asp Gly Ser Gly Val Cys Ile Asn
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Cys Gln His Asn Thr Ala Gly Glu His Cys Glu Arg Cys Lys Arg Gly
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Tyr Tyr Gly Ser Ala Ile His Gly Ser Cys Arg Val Cys Pro Cys Pro
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His Thr Asn Ser Phe Ala Thr Gly Cys Ala Val Asp Gly Gly Ala Val
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Arg Cys Ala Cys Lys Pro Gly Tyr Thr Gly Ala Gln Cys Glu Arg Cys
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Ala Pro Gly Tyr Phe Gly Asn Pro Gln Lys Phe Gly Gly Ser Cys Gln
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Pro Cys Asn Cys Asn Ser Asn Gly Gln Phe Gly Thr Cys Asp Pro Leu
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Thr Gly Asp Cys Val Ser Gln Glu Pro Lys Asp Gly Ser Pro Ala Glu
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Glu Cys Asp Asp Cys Asp Ser Cys Val Met Thr Leu Leu Asn Asp Leu
210 215 220

Val Pro Met Gly Glu Glu Leu Ala Leu Val Lys Ser Lys Leu Gln Gly
225 230 235 240

Leu Ser Val Asn Thr Gly Ser Leu Glu Gln Ile Arg His Val Glu Met
245 250 255

Gln Ala Lys Asp Leu Arg Asn Gln Leu Leu Gly Phe Arg Ser Ala Ile
260 265 270

Ser Ser His Gly Ser Gln Met Asp Gly Leu Glu Lys Glu Leu Ser His
275 280 285

Leu Tyr Gln Glu Phe Glu Thr Leu Gln Glu Lys Ala Gln Val Asn Ser
290 295 300

Arg Lys Ala Gln Thr Leu Tyr Asn Asn Ile Asp Thr Thr Ile Gln Asn
305 310 315 320

Ala Lys Glu Leu Asp Met Lys Ile Lys Asn Ile Leu Thr Asn Val His

325 330 335

Ile Leu Leu Lys Gln Ile Ala Arg Pro Gly Gly Glu Gly Met Asp Leu
340 345 350

Pro Val Gly Asp Trp Ser Arg Glu Ser Ala Glu Ala Gln Arg Met Leu
355 360 365

Arg Glu Leu Arg Gly Arg Asp Phe Lys Lys His Leu Gln Glu Ala Glu
370 375 380

Ala Gln Lys Met Glu Ala Gln Leu Leu Leu Asn Arg Ile Arg Thr Trp
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Leu Glu Ser His Gln Val Glu Asn Asn Gly Leu Leu Lys Asn Ile Arg
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Asp Ser Leu Asn Asp Tyr Glu Ala Lys Leu Gln Asp Leu Arg Ser Val
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Leu Gln Glu Ala Ala Ala Gln Gly Lys Gln Ala Thr Gly Leu Asn His
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Glu Asn Glu Gly Val Leu Gly Ala Ile Gln Arg Gln Met Lys Glu Met
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Asp Ser Leu Lys Lys Tyr Leu Thr Glu His Leu Ala Thr Ala Asp Ala
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Ser Leu Leu Gln Thr Asn Ser Leu Leu Gln Arg Met Asp Thr Ser Gln
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Lys Glu Tyr Glu Ser Leu Ala Ala Ala Leu Asn Gly Ala Arg Gln Glu
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Leu Asn Asp Gln Val Arg Glu Leu Ser Arg Ser Gly Gly Lys Ala Pro
515 520 525

Leu Val Ala Glu Ala Glu Lys His Ala Gln Ser Leu Gln Glu Leu Ala
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Lys Gln Leu Glu Glu Ile Lys Arg Asn Thr Ser Gly Asp Glu Ser Val
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Arg Cys Val Val Asp Ala Ala Thr Ala Tyr Glu Ser Ile Leu Asn Ala
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Ile Arg Ala Ala Glu Asp Ala Ala Gly Lys Ala Asp Ser Ala Ser Glu
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Ser Ala Phe Gln Thr Val Ile Lys Glu Asp Leu Pro Arg Arg Ala Lys
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Thr Leu Ser Ser Asp Ser Glu Glu Leu Leu Asn Glu Ala Lys Met Thr
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Arg Lys Arg Leu Gln Gln Glu Ile Asn Pro Ala Leu Asn Ser Leu Gln
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Gln Thr Leu Lys Thr Val Ser Val Gln Lys Asp Leu Leu Asp Ala Asn
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Val Thr Ala Val Arg Asn Asp Leu Arg Gly Ile Gln Arg Gly Asp Ile
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Asp Ser Val Val Ser Gly Ala Lys Ser Met Val Arg Lys Ala Asn Gly
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Gly Arg Ile Lys Asp Ser Tyr Gly Ser Thr Arg His Glu Asp Phe Asn
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Lys Ala Leu Ile Asp Ala Asn Asn Ser Val Lys Lys Leu Thr Lys Lys
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Leu Pro Asp Leu Phe Val Lys Ile Glu Ser Ile Asn Gln Gln Leu Leu
740 745 750

Pro Leu Gly Asn Ile Ser Asp Asn Val Asp Arg Ile Arg Glu Leu Ile
755 760 765

Thr Gln Ala Arg Asp Ala Ala Asn Lys Val Ala Ile Pro Met Arg Phe
770 775 780

Asn Gly Lys Ser Gly Val Glu Val Arg Leu Pro Asn Asp Leu Glu Asp
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Leu Lys Gly Tyr Thr Ser Leu Ser Leu Phe Leu Gln Arg Pro Asp Leu
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Lys Asp Ala Ser Lys Asp Tyr Ile Gly Met Ala Val Val Asp Gly Gln
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Leu Thr Cys Val Tyr Asn Leu Gly Asp Arg Glu Ala Glu Val Gln Ile
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Asp Gln Val Leu Thr Glu Ser Glu Ser Gln Glu Ala Val Met Asp Arg
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Val Lys Phe Gln Arg Ile Tyr Gln Phe Ala Lys Leu Asn Tyr Thr Lys
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Glu Ala Thr Ser Asn Lys Pro Lys Ala Pro Ala Val Tyr Asp Leu Glu
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Gly Gly Ser Ser Asn Thr Leu Leu Asn Leu Asp Pro Glu Asp Ala Val
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Phe Tyr Val Gly Gly Tyr Pro Pro Asp Phe Glu Leu Pro Ser Arg Leu
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Arg Phe Pro Pro Tyr Lys Gly Cys Ile Glu Leu Asp Asp Leu Asn Glu
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Asn Val Leu Ser Leu Tyr Asn Phe Lys Thr Thr Phe Asn Leu Asn Thr
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Thr Glu Val Glu Pro Cys Arg Arg Arg Lys Glu Glu Ser Asp Lys Asn
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Tyr Phe Glu Gly Thr Gly Tyr Ala  Arg Ile Pro Thr Gln  Pro Asn Ala
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Pro Phe  Pro Asn Phe Ile Gln  Thr Ile Gln Thr Thr  Val Asp Arg
    1010                1015                1020

Gly Leu  Leu Phe Phe Ala Glu  Asn Gln Asp Asn Phe  Ile Ser Leu
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Asn Ile  Glu Asp Gly Asn Leu  Met Val Arg Tyr Lys  Leu Asn Ser
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Lys Asp His Ser Ile Leu Ile Thr Ile Gly Lys Leu Gln Lys Arg
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Met Trp Ile Asn Val Asn Glu Arg Ser Val Arg Ile Glu Gly Glu
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Ile Phe Asp Phe Ser Thr Tyr Tyr Leu Gly Gly Ile Pro Ile Ala
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Ile Arg Glu Arg Phe Asn Ile Ser Thr Pro Ala Phe Gln Gly Cys
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Met Lys Asn Leu Lys Lys Thr Ser Gly Val Val Arg Leu Asn Asp
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Thr Val Gly Val Thr Lys Lys Cys Ser Glu Asp Trp Lys Leu Val
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Arg Thr Ala Ser Phe Ser Arg Gly Gly Gln Met Ser Phe Thr Asn
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Leu Asp Val Pro Ser Thr Asp Arg Phe Gln Leu Ser Phe Gly Phe
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Gln Thr Phe Gln Pro Ser Gly Thr Leu Leu Asn His Gln Thr Arg
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Ser Thr Arg Asp Ser Asn Ile Pro Ile Phe Lys Ser Pro Gly Thr
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Tyr Met Asp Gly Leu Leu His His Val Ser Val Ile Ser Asp Thr
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Ser Gly Leu Arg Leu Leu Ile Asp Asp Gln Val Leu Arg Arg Asn
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Gln Arg Leu Pro Ser Phe Ser Asn Ala Gln Gln Ser Leu Arg Leu
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Gly Gly Gly His Phe Glu Gly Cys Ile Ser Asn Val Leu Val Gln

1280 1285 1290

Arg Phe Ser Gln Ser Pro Glu Val Leu Asp Leu Ala Ser Lys Ser
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Thr Lys Lys Asp Ala Ser Leu Gly Gly Cys Ser Leu Asn Lys Pro
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Pro Phe Leu Met Leu Phe Lys Ser Pro Lys Arg Phe Asn Lys Gly
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Ser Pro Thr Ser His Leu Leu Leu Lys Leu Pro Gln Glu Leu Leu
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Lys Pro Arg Ser Gln Phe Ser Leu Asp Ile Gln Thr Thr Ser Pro
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Leu Tyr Val Ala Asp Gly Arg Val Val Phe Ala Leu Gly Ala Gly
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Gly Lys Lys Leu Arg Leu Arg Ser Lys Glu Arg Tyr His Asp Gly
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Asn Ser Thr Ile Ser Pro Arg Glu Gln Val Tyr Leu Gly Leu Pro
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Ser Gly Gln Arg Leu Ser Val Tyr Met Glu Ala Gly Lys Val Thr
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Ser Ile Lys Gln Arg Ile Leu His Leu Glu Leu Asp Thr Asp Ser
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Ser Tyr Thr Val Ala Pro Leu Ser Phe Ser Pro Asn Ser Thr Arg
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Gly Ser Leu His Val Gly Gly Val Pro Asp Lys Leu Lys Met Leu
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Asp Phe Gly Ser Thr Tyr Ser Pro Trp Gln Tyr Phe Ala His Ser Arg
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Leu Ile Ser Lys Ala Glu Arg Asp Pro Thr Val Thr Arg Arg Tyr Tyr
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Ser Ile Lys Asp Ile Ser Val Gly Gly Arg Cys Val Cys Asn Gly His
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Cys Gln His His Thr Cys Gly Asp Thr Cys Asn Arg Cys Cys Ala Gly
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Tyr Asn Gln Arg Arg Trp Gln Pro Ala Gly Gln Glu Gln His Asn Glu
            260                 265                 270

Cys Glu Ala Cys Asn Cys His Gly His Ala Val Asp Cys Tyr Tyr Asp
        275                 280                 285

Pro Asp Val Glu His Gln Gln Ala Ser Leu Asn Ser Lys Gly Val Tyr
    290                 295                 300

Ala Gly Gly Gly Val Cys Ile Asn Cys Gln His Asn Thr Ala Gly Val
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Asn Cys Glu Lys Cys Ala Lys Gly Tyr Phe Arg Pro His Gly Val Pro
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Val Asp Ala Leu His Gly Cys Ile Pro Cys Ser Cys Asp Pro Glu Arg
            340                 345                 350

Ala Asp Asp Cys Asp Gln Gly Ser Gly His Cys His Cys Lys Pro Asn
        355                 360                 365

Phe Ser Gly Asp Tyr Cys Glu Thr Cys Ala Asp Gly Tyr Tyr Asn Phe
    370                 375                 380

Pro Phe Cys Leu Arg Ile Pro Val Phe Pro Asn Tyr Thr Pro Ser Pro
385                 390                 395                 400

Glu Asp Pro Val Ala Gly Asn Ile Lys Gly Lys Asp Pro Gly Thr Leu
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Asp Pro Pro Val Ile Ala Asn Gly Ala Tyr Leu Gly Ala Ser Arg Leu
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Glu Gln Gly Ala Thr Gly Gln Gly Ser Pro Ala Glu Arg Val Thr His
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Asp Ser Glu Pro Lys Thr Gly Thr Gln Ala Lys Arg Gly Cys Asp Cys
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Ser Glu Cys Gln Cys His Glu Ala Gly Thr Leu Ser Gly Ile Gly Glu
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Cys Gly Gln Glu Asp Gly Asp Cys Ser Cys Lys Ala His Val Thr Gly
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Asp Ala Cys Asp Thr Cys Glu Asp Gly Phe Phe Ser Leu Glu Lys Ser
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Thr Thr Met Cys Ser Gly Pro Ser Gly Val Cys Gln Cys Arg Glu His
                725                 730                 735

Val Glu Gly Lys Gln Cys Gln Arg Pro Glu Asn Asn Tyr Tyr Phe Pro
            740                 745                 750

Asp Leu His His Met Lys Tyr Glu Val Glu Asp Gly Thr Gly Pro Asn
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Gly Arg Asn Leu Arg Phe Gly Phe Asp Pro Leu Val Phe Pro Glu Phe
    770                 775                 780

Ser Trp Arg Gly Tyr Ala Pro Met Thr Ser Val Gln Val Tyr Met Ser
785                 790                 795                 800

Glu Cys Val Cys Pro Leu His Cys Met Leu Phe Trp Gly Thr Phe Gln
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Asn Glu Val Arg Val Arg Leu Ser Val Arg Gln Ser Ser Leu Ser Leu
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Phe Arg Ile Val Leu Arg Tyr Ile Ser Pro Gly Thr Glu Ala Ile Ser
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Gly Arg Ile Thr Leu Tyr Ser Ser Gln Gly Asp Ser Asp Ala Leu Gln
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Ser Arg Lys Ile Thr Phe Pro Pro Ser Lys Glu Pro Ala Phe Val Thr
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Val Pro Gly Asn Gly Phe Ala Gly Pro Phe Ser Ile Thr Pro Gly Thr
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Trp Ile Ala Cys Ile Gln Val Glu Gly Val Leu Leu Asp Tyr Leu Val
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Tyr Gln His Leu Pro Leu Thr Ala Phe Ser Cys Thr Leu Ala Cys Glu
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Ala Arg His Phe Leu Leu Asp Gly Glu Leu Arg Pro Leu Ala Met Arg
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Gln Pro Thr Pro Thr His Pro Ala Met Val Asp Leu Ser Gly Arg Glu
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Val Glu Leu Gln Leu Arg Leu Arg  Val Pro Gln Val Gly  His Tyr Val
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Val Leu  Leu Glu Tyr Ala Thr  Glu Val Glu Gln Leu  Phe Val Val
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Asp Val  Asn Leu Lys Ser Ser  Gly Ser Ala Leu Ala  Gly Gln Val
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Asn Ile  Tyr Ser Cys Lys Tyr  Ser Ile Pro Cys Arg  Ser Val Val
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Ile Asp  Ser Leu Ser Arg Thr  Ala Val His Glu Leu  Leu Ala Asp
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Ala Asp  Ile Gln Leu Lys Ala  His Met Ala His Phe  Leu Leu Tyr
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His Ile  Cys Ile Ile Pro Ala  Glu Glu Phe Ser Thr  Glu Tyr Leu
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Arg Pro  Gln Val His Cys Ile  Ala Ser Tyr Arg Gln  His Ala Asn
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Pro Ser  Ala Ser Cys Val Ser  Leu Ala His Glu Thr  Pro Pro Thr
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Ala Ser  Ile Leu Asp Ala Thr  Ser Arg Gly Leu Phe  Ser Ala Leu
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Pro His  Glu Pro Ser Ser Pro  Ala Asp Gly Val Thr  Leu Lys Ala
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Phe Pro  Thr Glu Val Ile Val  Asn Gly Gly Arg Gln  Trp Ser Gly
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Ser Phe  Leu Ala Ser Phe Cys  Pro His Leu Leu Gly  Cys Arg Asp
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Gln Val  Ile Ser Asp Gly Gln  Val Glu Phe Asp Ile  Ser Glu Ala
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Glu Val  Ala Val Thr Val Lys  Ile Pro Asp Gly Lys  Ser Leu Thr
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Leu Val  Arg Val Leu Val Val  Pro Ala Glu Asn Tyr  Asp Tyr Gln
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Ile Leu  His Lys Thr Thr Val  Asp Lys Ser Ser Glu  Phe Ile Ser
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Ser Cys  Gly Gly Asp Ser Phe  Tyr Ile Asp Pro Gln  Ala Ala Ser
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Gly Phe  Cys Lys Asn Ser Ala  Arg Ser Leu Val Ala  Phe Tyr His
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Asn Gly  Ala Ile Pro Cys Glu  Cys Asp Pro Ala Gly  Thr Ala Gly
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His His  Cys Ser Pro Glu Gly  Gly Gln Cys Pro Cys  Arg Pro Asn
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Val Ile  Gly Arg Gln Cys Ser  Arg Cys Ala Thr Gly  Tyr Tyr Gly
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Phe Pro  Tyr Cys Lys Pro Cys  Asn Cys Gly Arg Arg  Leu Cys Glu
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Glu Val  Thr Gly Lys Cys Leu  Cys Pro Pro His Thr  Val Arg Pro
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Gln Cys  Glu Val Cys Glu Met  Asn Ser Phe Asn Phe  His Pro Val
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Gly Ser Phe Tyr Leu Asp Pro Thr Asn Pro Lys Gly Cys Thr Lys
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Ser Tyr Gly Gly Tyr Leu Thr Tyr His Ala Lys Ser Phe Gly Leu
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Pro Gly Asp Met Val Leu Leu Gly Lys Gln Pro Asp Val Gln Leu
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Arg Pro Asp Arg Leu His His Gly Arg Val Gln Val Ile Glu Gly
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Leu His Phe Thr Glu Thr Gln Arg Leu Thr Leu Gly Glu Val Gly
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Leu Glu Glu Ala Ser Asp Thr Gly Ser Gly Pro Arg Ala His Leu
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1835 1840 1845

Leu Thr Gly Asp Cys Val Asn Gln Glu Pro Lys Asp Gly Ser Pro
1850 1855 1860

Ala Glu Glu Cys Asp Asp Cys Asp Ser Cys Val Met Thr Leu Leu
1865 1870 1875

Asn Asp Leu Ala Ser Met Gly Glu Glu Leu Arg Leu Val Lys Ser
1880 1885 1890

Lys Leu Gln Gly Leu Ser Val Ser Thr Gly Ala Leu Glu Gln Ile
1895 1900 1905

Arg His Met Glu Thr Gln Ala Lys Asp Leu Arg Asn Gln Leu Leu
1910 1915 1920

Gly Phe Arg Ser Ala Thr Ser Ser His Gly Ser Lys Met Asp Asp
1925 1930 1935

Leu Glu Lys Glu Leu Ser His Leu Asn Arg Glu Phe Glu Thr Leu
1940 1945 1950

Gln Glu Lys Ala Gln Val Asn Ser Arg Lys Ala Gln Thr Leu Tyr
1955 1960 1965

Asn Asn Ile Asp Gln Thr Ile Gln Ser Ala Lys Glu Leu Asp Met
1970 1975 1980

Lys Ile Lys Asn Ile Val Gln Asn Val His Ile Leu Leu Lys Gln
1985 1990 1995

Met Ala Arg Pro Gly Gly Glu Gly Thr Asp Leu Pro Val Gly Asp
2000 2005 2010

Trp Ser Arg Glu Leu Ala Glu Ala Gln Arg Met Met Arg Asp Leu
2015 2020 2025

Arg Ser Arg Asp Phe Lys Lys His Leu Gln Glu Ala Glu Ala Glu
2030 2035 2040

Lys Met Glu Ala Gln Leu Leu Leu His Arg Ile Arg Thr Trp Leu
2045 2050 2055

Glu Ser His Gln Val Glu Asn Asn Gly Leu Leu Lys Asn Ile Arg
2060 2065 2070

Asp Ser Leu Asn Asp Tyr Glu Asp Lys Leu Gln Asp Leu Arg Ser
2075 2080 2085

Ile Leu Gln Glu Ala Ala Ala Gln Ala Lys Gln Ala Thr Gly Ile
2090 2095 2100

Asn His Glu Asn Glu Gly Val Leu Gly Ala Ile Gln Arg Gln Met
2105 2110 2115

Lys Glu Met Asp Ser Leu Lys Asn Asp Phe Thr Lys Tyr Leu Ala
2120 2125 2130

Thr Ala Asp Ser Ser Leu Leu Gln Thr Asn Asn Leu Leu Gln Gln
2135 2140 2145

Met Asp Lys Ser Gln Lys Glu Tyr Glu Ser Leu Ala Ala Ala Leu
2150 2155 2160

Asn Gly Ala Arg Gln Glu Leu Ser Asp Arg Val Arg Glu Leu Ser
2165 2170 2175

Arg Ser Gly Gly Lys Ala Pro Leu Val Val Glu Ala Glu Lys His
2180 2185 2190

Ala Gln Ser Leu Gln Glu Leu Ala Lys Gln Leu Glu Glu Ile Lys
2195 2200 2205

Arg Asn Thr Ser Gly Asp Glu Leu Val Arg Cys Ala Val Asp Ala
2210 2215 2220

Ala Thr Ala Tyr Glu Asn Ile Leu Asn Ala Ile Arg Ala Ala Glu
2225 2230 2235

Asp Ala Ala Ser Lys Ala Thr Ser Ala Ser Lys Ser Ala Phe Gln
2240 2245 2250

Thr Val Ile Lys Glu Asp Leu Pro Lys Arg Ala Lys Thr Leu Ser
2255 2260 2265

Ser Asp Ser Glu Glu Leu Leu Asn Glu Ala Lys Met Thr Gln Lys
2270 2275 2280

Arg Leu Gln Gln Val Ser Pro Ala Leu Asn Ser Leu Gln Gln Thr
2285 2290 2295

Leu Lys Thr Val Ser Val Gln Lys Asp Leu Leu Asp Ala Asn Leu

2300 2305 2310

Thr Val Ala Arg Asp Asp Leu His Gly Ile Gln Arg Gly Asp Ile
2315 2320 2325

Asp Ser Val Val Ile Gly Ala Lys Ser Met Val Arg Glu Ala Asn
2330 2335 2340

Gly Ile Thr Ser Glu Val Leu Asp Gly Leu Asn Pro Ile Gln Thr
2345 2350 2355

Asp Leu Gly Arg Ile Lys Asp Ser Tyr Glu Ser Ala Arg Arg Glu
2360 2365 2370

Asp Phe Ser Lys Ala Leu Val Asp Ala Asn Asn Ser Val Lys Lys
2375 2380 2385

Leu Thr Arg Lys Leu Pro Asp Leu Phe Ile Lys Ile Glu Ser Ile
2390 2395 2400

Asn Gln Gln Leu Leu Pro Leu Gly Asn Ile Ser Asp Asn Val Asp
2405 2410 2415

Arg Ile Arg Glu Leu Ile Gln Gln Ala Arg Asp Ala Ala Asn Lys
2420 2425 2430

Val Gly Ile Pro Ile Trp Leu
2435 2440

<210> 11
<211> 360
<212> PRT
<213> Homo sapiens

<400> 11

Cys Ser Pro Leu Pro Lys Thr Gln Ala Asn His Gly Ala Leu Gln Phe
1 5 10 15

Gly Asp Ile Pro Thr Ser His Leu Leu Phe Lys Leu Pro Gln Glu Leu
20 25 30

Leu Lys Pro Arg Ser Gln Phe Ala Val Asp Met Gln Thr Thr Ser Ser
35 40 45

Arg Gly Leu Val Phe His Thr Gly Thr Lys Asn Ser Phe Met Ala Leu
50 55 60

Tyr Leu Ser Lys Gly Arg Leu Val Phe Ala Leu Gly Thr Asp Gly Lys
65 70 75 80

Lys Leu Arg Ile Lys Ser Lys Glu Lys Cys Asn Asp Gly Lys Trp His
85 90 95

Thr Val Val Phe Gly His Asp Gly Glu Lys Gly Arg Leu Val Val Asp
100 105 110

Gly Leu Arg Ala Arg Glu Gly Ser Leu Pro Gly Asn Ser Thr Ile Ser
115 120 125

Ile Arg Ala Pro Val Tyr Leu Gly Ser Pro Pro Ser Gly Lys Pro Lys
130 135 140

Ser Leu Pro Thr Asn Ser Phe Val Gly Cys Leu Lys Asn Phe Gln Leu
145 150 155 160

Asp Ser Lys Pro Leu Tyr Thr Pro Ser Ser Ser Phe Gly Val Ser Ser
165 170 175

Cys Leu Gly Gly Pro Leu Glu Lys Gly Ile Tyr Phe Ser Glu Glu Gly
180 185 190

Gly His Val Val Leu Ala His Ser Val Leu Leu Gly Pro Glu Phe Lys
195 200 205

Leu Val Phe Ser Ile Arg Pro Arg Ser Leu Thr Gly Ile Leu Ile His
210 215 220

Ile Gly Ser Gln Pro Gly Lys His Leu Cys Val Tyr Leu Glu Ala Gly
225 230 235 240

Lys Val Thr Ala Ser Met Asp Ser Gly Ala Gly Gly Thr Ser Thr Ser
245 250 255

Val Thr Pro Lys Gln Ser Leu Cys Asp Gly Gln Trp His Ser Val Ala
260 265 270

Val Thr Ile Lys Gln His Ile Leu His Leu Glu Leu Asp Thr Asp Ser
275 280 285

Ser Tyr Thr Ala Gly Gln Ile Pro Phe Pro Pro Ala Ser Thr Gln Glu
290 295 300

Pro Leu His Leu Gly Gly Ala Pro Ala Asn Leu Thr Thr Leu Arg Ile
305 310 315 320

Pro Val Trp Lys Ser Phe Phe Gly Cys Leu Arg Asn Ile His Val Asn
325 330 335

His Ile Pro Val Pro Val Thr Glu Ala Leu Glu Val Gln Gly Pro Val
340 345 350

Ser Leu Asn Gly Cys Pro Asp Gln
355 360

<210> 12
<211> 1371
<212> DNA
<213> Homo sapiens

<400> 12
tgctcaccac ttcccaagac ccaggccaat catggagccc tccagtttgg ggacattccc 60

accagccact tgctattcaa gcttcctcag gagctgctga aacccaggtc acagtttgct 120

gtggacatgc agacaacatc ctccagagga ctggtgtttc acacgggcac taagaactcc 180

tttatggctc tttatctttc aaaaggacgt ctggtctttg cactggggac agatgggaaa 240

aaattgagga tcaaaagcaa ggagaaatgc aatgatggga aatggcacac ggtggtgttt 300

ggccatgatg gggaaaaggg gcgcttggtt gtggatggac tgagggcccg ggagggaagt 360

ttgcctggaa actccaccat cagcatcaga gcgccagttt acctgggatc acctccatca 420

gggaaaccaa agagcctccc cacaaacagc tttgtgggat gcctgaagaa ctttcagctg 480

gattcaaaac ccttgtatac cccttcttca agcttcgggg tgtcttcctg cttgggtggt 540

cctttggaga aaggcattta tttctctgaa gaaggaggtc atgtcgtctt ggctcactct 600

gtattgttgg ggccagaatt taagcttgtt ttcagcatcc gcccaagaag tctcactggg 660

atcctaatac acatcggaag tcagcccggg aagcacttat gtgtttacct ggaggcagga 720

aaggtcacgg cctctatgga cagtggggca ggtgggacct caacgtcggt cacaccaaag 780

cagtctctgt gtgatggaca gtggcactcg gtggcagtca ccataaaaca acacatcctg 840

cacctggaac tggacacaga cagtagctac acagctggac agatcccctt cccacctgcc 900

agcactcaag agccactaca ccttggaggt gctccagcca atttgacgac actgaggatc 960

cctgtgtgga aatcattctt tggctgtctg aggaatattc atgtcaatca catccctgtc 1020

cctgtcactg aagccttgga agtccagggg cctgtcagtc tgaatggttg tcctgaccag 1080

taacccaagc ctatttcaca gcaaggaaat tcaccttcaa aagcactgat tacccaatgc 1140

acctccctcc ccagctcgag atcattcttc aattaggaca caaaccagac aggtttaata 1200

gcgaatctaa ttttgaattc tgaccatgga tacccatcac tttggcattc agtgctacat 1260

gtgtatttta tataaaaatc ccatttcttg aagataaaaa aattgttatt caaattgtta 1320

tgcacagaat gtttttggta atattaattt ccactaaaaa attaaatgtc t 1371

<210> 13
<211> 184
<212> PRT
<213> Homo sapiens

<400> 13

Cys Leu Gly Gly Pro Leu Glu Lys Gly Ile Tyr Phe Ser Glu Glu Gly
1 5 10 15

Gly His Val Val Leu Ala His Ser Val Leu Leu Gly Pro Glu Phe Lys
20 25 30

Leu Val Phe Ser Ile Arg Pro Arg Ser Leu Thr Gly Ile Leu Ile His
35 40 45

Ile Gly Ser Gln Pro Gly Lys His Leu Cys Val Tyr Leu Glu Ala Gly
50 55 60

Lys Val Thr Ala Ser Met Asp Ser Gly Ala Gly Gly Thr Ser Thr Ser
65 70 75 80

Val Thr Pro Lys Gln Ser Leu Cys Asp Gly Gln Trp His Ser Val Ala
85 90 95

Val Thr Ile Lys Gln His Ile Leu His Leu Glu Leu Asp Thr Asp Ser
100 105 110

Ser Tyr Thr Ala Gly Gln Ile Pro Phe Pro Pro Ala Ser Thr Gln Glu
115 120 125

Pro Leu His Leu Gly Gly Ala Pro Ala Asn Leu Thr Thr Leu Arg Ile
130 135 140

Pro Val Trp Lys Ser Phe Phe Gly Cys Leu Arg Asn Ile His Val Asn
145 150 155 160

His Ile Pro Val Pro Val Thr Glu Ala Leu Glu Val Gln Gly Pro Val
165 170 175

Ser Leu Asn Gly Cys Pro Asp Gln
180

<210> 14
<211> 843
<212> DNA
<213> Homo sapiens

<400> 14
tgcttgggtg gtcctttgga gaaaggcatt tatttctctg aagaaggagg tcatgtcgtc 60

ttggctcact ctgtattgtt ggggccagaa tttaagcttg ttttcagcat ccgcccaaga 120

agtctcactg ggatcctaat acacatcgga agtcagcccg ggaagcactt atgtgtttac 180

ctggaggcag gaaaggtcac ggcctctatg gacagtgggg caggtgggac ctcaacgtcg 240

gtcacaccaa agcagtctct gtgtgatgga cagtggcact cggtggcagt caccataaaa 300

caacacatcc tgcacctgga actggacaca gacagtagct acacagctgg acagatcccc 360

ttcccacctg ccagcactca agagccacta caccttggag gtgctccagc caatttgacg 420

acactgagga tccctgtgtg gaaatcattc tttggctgtc tgaggaatat tcatgtcaat 480

cacatccctg tccctgtcac tgaagccttg gaagtccagg ggcctgtcag tctgaatggt 540

tgtcctgacc agtaacccaa gcctatttca cagcaaggaa attcaccttc aaaagcactg 600

attacccaat gcacctccct ccccagctcg agatcattct tcaattagga cacaaaccag 660

acaggtttaa tagcgaatct aattttgaat tctgaccatg gatacccatc actttggcat 720

tcagtgctac atgtgtattt tatataaaaa tcccatttct tgaagataaa aaaattgtta 780

ttcaaattgt tatgcacaga atgtttttgg taatattaat ttccactaaa aaattaaatg 840

tct 843

<210> 15
<211> 11
<212> PRT
<213> Homo sapiens

<400> 15

Pro Leu Pro Lys Thr Gln Ala Asn His Gly Ala
1 5 10

<210> 16
<211> 31
<212> DNA
<213> Homo sapiens

<400> 16
cacttcccaa gacccaggcc aatcatggag c 31

<210> 17
<211> 16

<212> PRT
<213> Homo sapiens

<400> 17

Ser His Leu Leu Phe Lys Leu Pro Gln Glu Leu Leu Lys Pro Arg Ser
1 5 10 15

<210> 18
<211> 47
<212> DNA
<213> Homo sapiens

<400> 18
gccacttgct attcaagctt cctcaggagc tgctgaaacc caggtca 47

<210> 19
<211> 131
<212> PRT
<213> Homo sapiens

<400> 19

Thr Ser Ser Arg Gly Leu Val Phe His Thr Gly Thr Lys Asn Ser Phe
1 5 10 15

Met Ala Leu Tyr Leu Ser Lys Gly Arg Leu Val Phe Ala Leu Gly Thr
20 25 30

Asp Gly Lys Lys Leu Arg Ile Lys Ser Lys Glu Lys Cys Asn Asp Gly
35 40 45

Lys Trp His Thr Val Val Phe Gly His Asp Gly Glu Lys Gly Arg Leu
50 55 60

Val Val Asp Gly Leu Arg Ala Arg Glu Gly Ser Leu Pro Gly Asn Ser
65 70 75 80

Thr Ile Ser Ile Arg Ala Pro Val Tyr Leu Gly Ser Pro Pro Ser Gly
85 90 95

Lys Pro Lys Ser Leu Pro Thr Asn Ser Phe Val Gly Cys Leu Lys Asn
100 105 110

Phe Gln Leu Asp Ser Lys Pro Leu Tyr Thr Pro Ser Ser Ser Phe Gly
115 120 125

Val Ser Ser
130

<210> 20
<211> 398
<212> DNA
<213> Homo sapiens

<400> 20
gacaacatcc tccagaggac tggtgtttca cacgggcact aagaactcct ttatggctct 60

ttatctttca aaaggacgtc tggtctttgc actggggaca gatgggaaaa aattgaggat 120

caaaagcaag gagaaatgca atgatgggaa atggcacacg gtggtgtttg gccatgatgg 180

ggaaaagggg cgcttggttg tggatggact gagggcccgg gagggaagtt tgcctggaaa 240

ctccaccatc agcatcagag cgccagttta cctgggatca cctccatcag ggaaaccaaa 300

gagcctcccc acaaacagct ttgtgggatg cctgaagaac tttcagctgg attcaaaacc 360

cttgtatacc ccttcttcaa gcttcggggt gtcttcct 398

<210> 21
<211> 315
<212> PRT
<213> Homo sapiens

<400> 21

Thr Ser Ser Arg Gly Leu Val Phe His Thr Gly Thr Lys Asn Ser Phe
1 5 10 15

Met Ala Leu Tyr Leu Ser Lys Gly Arg Leu Val Phe Ala Leu Gly Thr
20 25 30

Asp Gly Lys Lys Leu Arg Ile Lys Ser Lys Glu Lys Cys Asn Asp Gly
35 40 45

Lys Trp His Thr Val Val Phe Gly His Asp Gly Glu Lys Gly Arg Leu
50 55 60

Val Val Asp Gly Leu Arg Ala Arg Glu Gly Ser Leu Pro Gly Asn Ser
65 70 75 80

Thr Ile Ser Ile Arg Ala Pro Val Tyr Leu Gly Ser Pro Pro Ser Gly
85 90 95

Lys Pro Lys Ser Leu Pro Thr Asn Ser Phe Val Gly Cys Leu Lys Asn
100 105 110

Phe Gln Leu Asp Ser Lys Pro Leu Tyr Thr Pro Ser Ser Ser Phe Gly
115 120 125

Val Ser Ser Cys Leu Gly Gly Pro Leu Glu Lys Gly Ile Tyr Phe Ser

130 135 140

Glu Glu Gly Gly His Val Val Leu Ala His Ser Val Leu Leu Gly Pro
145 150 155 160

Glu Phe Lys Leu Val Phe Ser Ile Arg Pro Arg Ser Leu Thr Gly Ile
165 170 175

Leu Ile His Ile Gly Ser Gln Pro Gly Lys His Leu Cys Val Tyr Leu
180 185 190

Glu Ala Gly Lys Val Thr Ala Ser Met Asp Ser Gly Ala Gly Gly Thr
195 200 205

Ser Thr Ser Val Thr Pro Lys Gln Ser Leu Cys Asp Gly Gln Trp His
210 215 220

Ser Val Ala Val Thr Ile Lys Gln His Ile Leu His Leu Glu Leu Asp
225 230 235 240

Thr Asp Ser Ser Tyr Thr Ala Gly Gln Ile Pro Phe Pro Pro Ala Ser
245 250 255

Thr Gln Glu Pro Leu His Leu Gly Gly Ala Pro Ala Asn Leu Thr Thr
260 265 270

Leu Arg Ile Pro Val Trp Lys Ser Phe Phe Gly Cys Leu Arg Asn Ile
275 280 285

His Val Asn His Ile Pro Val Pro Val Thr Glu Ala Leu Glu Val Gln
290 295 300

Gly Pro Val Ser Leu Asn Gly Cys Pro Asp Gln
305 310 315

<210> 22
<211> 935
<212> DNA
<213> Homo sapiens

<400> 22
catcctccag aggactggtg tttcacacgg gcactaagaa ctcctttatg gctctttatc 60

tttcaaaagg acgtctggtc tttgcactgg ggacagatgg gaaaaaattg aggatcaaaa 120

gcaaggagaa atgcaatgat gggaaatggc acacggtggt gtttggccat gatggggaaa 180

aggggcgctt ggttgtggat ggactgaggg cccgggaggg aagtttgcct ggaaactcca 240

ccatcagcat cagagcgcca gtttacctgg gatcacctcc atcagggaaa ccaaagagcc 300

tccccacaaa cagctttgtg ggatgcctga agaactttca gctggattca aaacccttgt 360

ataccccttc ttcaagcttc ggggtgtctt cctgcttggg tggtcctttg gagaaaggca 420

tttatttctc tgaagaagga ggtcatgtcg tcttggctca ctctgtattg ttggggccag 480

aatttaagct tgttttcagc atccgcccaa gaagtctcac tgggatccta atacacatcg 540

gaagtcagcc cgggaagcac ttatgtgttt acctggaggc aggaaaggtc acggcctcta 600

tggacagtgg ggcaggtggg acctcaacgt cggtcacacc aaagcagtct ctgtgtgatg 660

gacagtggca ctcggtggca gtcaccataa aacaacacat cctgcacctg gaactggaca 720

cagacagtag ctacacagct ggacagatcc ccttcccacc tgccagcact caagagccac 780

tacaccttgg aggtgctcca gccaatttga cgacactgag gatccctgtg tggaaatcat 840

tctttggctg tctgaggaat attcatgtca atcacatccc tgtccctgtc actgaagcct 900

tggaagtcca ggggcctgtc agtctgaatg gttgt 935

<210> 23
<211> 154
<212> PRT
<213> Homo sapiens

<400> 23

Phe Lys Leu Val Phe Ser Ile Arg Pro Arg Ser Leu Thr Gly Ile Leu
1 5 10 15

Ile His Ile Gly Ser Gln Pro Gly Lys His Leu Cys Val Tyr Leu Glu
20 25 30

Ala Gly Lys Val Thr Ala Ser Met Asp Ser Gly Ala Gly Gly Thr Ser
35 40 45

Thr Ser Val Thr Pro Lys Gln Ser Leu Cys Asp Gly Gln Trp His Ser
50 55 60

Val Ala Val Thr Ile Lys Gln His Ile Leu His Leu Glu Leu Asp Thr
65 70 75 80

Asp Ser Ser Tyr Thr Ala Gly Gln Ile Pro Phe Pro Pro Ala Ser Thr
85 90 95

Gln Glu Pro Leu His Leu Gly Gly Ala Pro Ala Asn Leu Thr Thr Leu
100 105 110

Arg Ile Pro Val Trp Lys Ser Phe Phe Gly Cys Leu Arg Asn Ile His

115 120 125

Val Asn His Ile Pro Val Pro Val Thr Glu Ala Leu Glu Val Gln Gly
130 135 140

Pro Val Ser Leu Asn Gly Cys Pro Asp Gln
145 150

<210> 24
<211> 462
<212> DNA
<213> Homo sapiens

<400> 24
ttaagcttgt tttcagcatc cgcccaagaa gtctcactgg gatcctaata cacatcggaa 60

gtcagcccgg gaagcactta tgtgtttacc tggaggcagg aaaggtcacg gcctctatgg 120

acagtggggc aggtgggacc tcaacgtcgg tcacaccaaa gcagtctctg tgtgatggac 180

agtggcactc ggtggcagtc accataaaac aacacatcct gcacctggaa ctggacacag 240

acagtagcta cacagctgga cagatcccct tcccacctgc cagcactcaa gagccactac 300

accttggagg tgctccagcc aatttgacga cactgaggat ccctgtgtgg aaatcattct 360

ttggctgtct gaggaatatt catgtcaatc acatccctgt ccctgtcact gaagccttgg 420

aagtccaggg gcctgtcagt ctgaatggtt gtcctgacca gt 462